TABLE OF CONTENTS — January–December 1987 • Volume 96

JANUARY

PART I

Digital Television at 45 Mbits/Sec ..... R. C. BRAINARD and A. N. NETRAVALI 4
The World's First All-Digital Television Production ..... MICHEL OUDIN 11
Noise in Film-to-Video Transfers ..... STEVEN J. POWELL and GLENN L. KENNEL 16
Production and Post-Production Experience with ½-in. Camera Recorders in the CBC ..... PAUL KAISER and STANLEY QUINN 28
Digital Audio Post-Production: Sound Editing Transformed ..... JAMES W. WOLVINGTON 34
The 21st Annual SMPTE Conference, Feb. 6–7, 1987, San Francisco 40
Minutes of the Annual Meeting of the Voting Members of the SMPTE 48
SMPTE Rocky Mountain Section Conducts Special All-Day Seminar 52

PART II — SPECIAL SUPPLEMENT

The 128th SMPTE Technical Conference and Equipment Exhibit 75

FEBRUARY

The SMPTE D-1 Format and Possible Scanner Configurations ..... TAKEO EGUCHI 166
Formatting and Coding the Audio in the DTTR ..... KENNETH P. DAVIES 171
Considerations for Improvement of an HDTV Digital VTR ..... YOSHIZUMI ETO, MASUO UMEMOTO, and TOSHIAKI KAWAMURA 177
An Overview of Solid-State Sensor Technology ..... KOICHI SADASHIGE 180
Producing Tints and Tones in Monochrome Films Using Modern Color Techniques ..... DOMINIC CASE 186
Bit-Rate Reduction in the Transmission of High-Definition Television Signals ..... RYOZO KISHIMOTO, NAOYA SAKURAI, and AKIHIKO ISHIKURA 191
129th SMPTE Technical Conference, Oct. 30–Nov. 4, 1987, Los Angeles 198

MARCH

The Audio Side of Videocassette Duplication — A Tutorial ..... JAMES W. BROWN 230
HDTV Compatible Transmission System ..... WILLIAM E. GLENN and KAREN G. GLENN 242
A Film Studio Looks at HDTV ..... RICHARD J. STUMPF 247
Video Recording: A History ..... JULIA A. STANTON and MICHAEL J. STANTON 253
129th SMPTE Technical Conference and Equipment Exhibit 264
SMPTE Supports Technical Meeting in Rome, Italy 266
Satellite Technology Discussed in Special All-Day Meeting of the Washington, D.C., Section 274

APRIL

The 1986 Progress Report — Foreword 326
Engineering Report ..... RICHARD G. STREETER 327
Motion Pictures ..... L. JOHN SPRING, JR. 332
Television ..... FRANK J. HANEY 346
Educational ..... IRWIN W. YOUNG 389
The 21st Annual SMPTE Television Conference, Feb. 6–7, 1987, San Francisco 391
Synopses of Papers Presented at the 21st Television Conference 402

TABLE OF CONTENTS — January–December 1987 • Volume 96

JANUARY

PART I

Digital Television at 45 Mbits/Sec ..... R. C. BRAINARD and A. N. NETRAVALI 4
The World's First All-Digital Television Production ..... MICHEL OUDIN 11
Noise in Film-to-Video Transfers ..... STEVEN J. POWELL and GLENN L. KENNEL 16
Production and Post-Production Experience with ½-in. Camera Recorders in the CBC ..... PAUL KAISER and STANLEY QUINN 28
Digital Audio Post-Production: Sound Editing Transformed ..... JAMES W. WOLVINGTON 34
The 21st Annual SMPTE Conference, Feb. 6–7, 1987, San Francisco 40
Minutes of the Annual Meeting of the Voting Members of the SMPTE 48
SMPTE Rocky Mountain Section Conducts Special All-Day Seminar 52

PART II — SPECIAL SUPPLEMENT

The 128th SMPTE Technical Conference and Equipment Exhibit 75

FEBRUARY

The SMPTE D-1 Format and Possible Scanner Configurations ..... TAKEO EGUCHI 166
Formatting and Coding the Audio in the DTTR ..... KENNETH P. DAVIES 171
Considerations for Improvement of an HDTV Digital VTR ..... YOSHIZUMI ETO, MASUO UMEMOTO, and TOSHIAKI KAWAMURA 177
An Overview of Solid-State Sensor Technology ..... KOICHI SADASHIGE 180
Producing Tints and Tones in Monochrome Films Using Modern Color Techniques ..... DOMINIC CASE 186
Bit-Rate Reduction in the Transmission of High-Definition Television Signals ..... RYOZO KISHIMOTO, NAOYA SAKURAI, and AKIHIKO ISHIKURA 191
129th SMPTE Technical Conference, Oct. 30–Nov. 4, 1987, Los Angeles 198

MARCH

The Audio Side of Videocassette Duplication — A Tutorial ..... JAMES W. BROWN 230
HDTV Compatible Transmission System ..... WILLIAM E. GLENN and KAREN G. GLENN 242
A Film Studio Looks at HDTV ..... RICHARD J. STUMPF 247
Video Recording: A History ..... JULIA A. STANTON and MICHAEL J. STANTON 253
129th SMPTE Technical Conference and Equipment Exhibit 264
SMPTE Supports Technical Meeting in Rome, Italy 266
Satellite Technology Discussed in Special All-Day Meeting of the Washington, D.C., Section 274

APRIL

The 1986 Progress Report — Foreword 326
Engineering Report ..... RICHARD G. STREETER 327
Motion Pictures ..... L. JOHN SPRING, JR. 332
Television ..... FRANK J. HANEY 346
Educational ..... IRWIN W. YOUNG 389
The 21st Annual SMPTE Television Conference, Feb. 6–7, 1987, San Francisco 391
Synopses of Papers Presented at the 21st Television Conference 402

TABLE OF CONTENTS — January–December 1987 • Volume 96

MAY

PART I

Minimum Resolvable and Minimum Detectable Contrast Prediction for Monochrome Solid-State Imagers ..... WAYNE W. FRAME 454
HDTV Bandwidth Reduction by Adaptive Subsampling and Motion-Compensation DATV Techniques ..... GRAHAM A. THOMAS 460
A New Small-Format VTR Using an 8mm Cassette ..... T. KAWAMURA, S. KASAI, T. TOMINAGA, H. SATO, and M. INATSU 466
Photoconductors Utilized in TV Camera Tubes ..... ROBERT G. NEUHAUSER 473
129th SMPTE Technical Conference and Equipment Exhibit 488
Toronto Section Meeting Transmitted by Satellite 496

PART II

SMPTE Directory for Members 1–200

JUNE

A New 510-Element CCD Camcorder for ENG ..... L. THORPE and E. TAMURA 518
A Proposed Universal Signal-Processing System ..... K. MURAKAMI, K. ENAMI, and N. YAGI 527
Standardization and Independence: The Founding Objectives of the SMPTE ..... JANET STAIGER 532
129th SMPTE Technical Conference and Equipment Exhibit, Los Angeles 537
SMPTE a Participant at NAB '87 539

SPECIAL REPRINT OF BOOK
Image Quality: A Comparison of Photographic and Television Systems ..... OTTO H. SCHADE, SR. 567

JULY

Parallel Component Analog Video Timing and Amplitude Considerations ..... DAVID E. ACKER 654
An Optical Routing System for Tomorrow's Television Studio Centers ..... ANDREW OLIPHANT, RICHARD MARSDEN, and JOHN ZUBRZYCKI 660
Locus Display of Moving Sports Players ..M. OKUI, K. OHZEKI, K. SHIRATA, and K. MURAKAMI 667
The Zoom Aerial 65mm Optical Printer (ZAP) System ..... RICHARD EDLUND, DAVID GRAFTON, MARK WEST, and BOB WILCOX 674
Eastman Color High-Speed Daylight Negative Film 5297 and 7297 ..... S. W. SPAKOWSKY, J. C. NORRIS, and S. J. POWELL 679
Evolution During Revolution ..... GUY GOUGEON 684
Our Society — Its Beginning, Its Growth ..... ALEX E. ALDEN 687
The SMPTE Hollywood Section/USC Seminar on Electronic Post-Production for Film and Videotape ..... ARTHUR SCHNEIDER 692
129th SMPTE Technical Conference and Equipment Exhibit 703
22nd Annual SMPTE Television Conference, Jan. 29–30, 1988, Nashville, Tenn. 704

AUGUST

Improved Television Systems: NTSC and Beyond ..... WILLIAM F. SCHREIBER 734
Modernization and Computerization of the Silver-Recovery Operation in a High-Volume Laboratory ..... J. L. BAPTISTA, D. BUTTRAM, M. ROBERTS, and J. C. WARY 745
Improving NTSC to Achieve Near-RGB Performance ..... YVES FAROUDJA and JOSEPH ROIZEN 750
Bibliography: Video Production Technologies .... JULIA A. STANTON and MICHAEL J. STANTON 762
Cultivating the Wasteland with Technology ..... RICHARD R. GREEN 770
Minutes of Special Meeting of the Voting Members of the SMPTE 773
SMPTE Constitution and Bylaws 773
Sections Officers and Managers as of July 1, 1987 780
129th SMPTE Technical Conference and Equipment Exhibit 781
Mini-Conference of the Montreal/Quebec, Ottawa, Rochester, and Toronto Sections 782
Film/Electronic Interface ..... IRWIN W. YOUNG 784
1987 Sections and Engineering Training Seminars ..... LYNETTE ROBINSON and SI BECKER 786

TABLE OF CONTENTS — January–December 1987 • Volume 96

SEPTEMBER

HDTV Colorimetry and Gamma Considering the Visibility of Noise and Quantization Errors ..... RALF SCHÄFER and PETER KAUFF 822
Two TV Signals on a 45 Mbit/sec Channel ..... R. C. BRAINARD and A. N. NETRAVALI 834
Variable-Resolution Rendering System Extends TV Animation Graphics to Film and Print Media ... PHILIP LUCHT 837
Gamma and Dynamic Range Needs for an HDTV Electronic Cinematography System ..... HARRY MATHIAS 840
Television: The Challenge of the Future ..... JOSEPH A. FLAHERTY 846
Type-C Format Audio Level Interchange Problems in Broadcast Operations: A Report from the SMPTE Study Group on Type-C Audio Levels on Interchange ..... TOM CAVANAGH 851
129th SMPTE Technical Conference and Equipment Exhibit 854

OCTOBER

The Composite Digital Format and Its Applications ..... E. ENGBERG, R. BRUSH, .. M. LEMOINE, S. MAGNUSSON, F. MORRISON, D. RODAL, D. RYAN, and J. WATNEY 934
Rotating Digital Audio Tape (R-DAT): A Format Overview ..... PETER A. DARE and RYUICHI KATSUMI 943
Product Implementation of the 4:2:2 Component Digital Format ..... CURTIS CHAN and TAKEO EGUCHI 949
A Proposal for a New High-Definition NTSC Broadcast Protocol ..... RICHARD J. IREDALE 959
New Technology and the Broadcaster ..... MAX BERRY and ROBERT THOMAS 971
1986 Financial Reports 975
Chicago Section Holds Eleventh All-Day Meeting 977
Meeting the Challenge of New Technology ..... IRWIN W. YOUNG 980
SMPTE Participates in 1987 Montreux Symposium and 10th International BKSTS Conference 986
129th SMPTE Technical Conference and Equipment Exhibit 988

NOVEMBER

High-Quality Magneto-Optic Disk Video Recording ..... T. NOMURA, K. YOKOYAMA, S. NAKAGAWA, and K. KIMOTO 1062
A Component Analog News Studio Center ..... GRAHAM J. DEAVES 1068
Transition to Digital Recording: An Emerging Trend Influencing All Analog Signal Recording Applications ..... KOICHI SADASHIGE 1073
The Computer as a Camera-Operation and Image-Quality Manager ..... FREDERIK J. VAN ROESSEL and ENGBERT TIENKAMP 1079
A Route to Higher-Definition Television with DBS ..... JOHN R. FORREST 1087
Electronic Cinematography for Motion-Picture Film ..... JAMES A. MENDRALA 1090
New Frontiers: The Next 15 Years ..... MICHAEL J. SHERLOCK 1095
Japan Trip: A Message From the President and Delegates 1099
Keynote Address for HDTV Production Symposium ..... M. CARLOS KENNEDY 1106
An Update on the Television and Film Aspects of HDTV, May 21, 1987, Tokyo ..... RICHARD G. STREETER 1108
Open-House Exhibition at NHK Technical Research Laboratories 1111

DECEMBER

Real-Time Video Signal Processor ..... KAZUMASA ENAMI, NOBUYUKI YAGI, and KEINOSUKE MURAKAMI 1158
A Review of the Signal Format Specification for the 4:2:2 Component Digital VTR ..... JAMES H. WILKINSON 1166
Error-Correction Strategy for the New Generation of 4:2:2 Component DVTRs ..... C. H. GILLARD 1173
An Experimental Quality Control Program for Printing Archival Films ..... HENNING SCHOU and DOMINIC CASE 1180
High-Density Solid-State Image Sensor ..... W. C. CHANG, T. J. TREDWELL, E. G. STEVENS, and D. N. NICHOLS 1186
Electronic Post-Production for Film and Videotape — An Update ..... ARTHUR SCHNEIDER 1189
SMPTE Holds Annual Elections for Officers and Governors 1193
SMPTE Receives Emmy Award for D-1 Standardization 1194
Acceptance Speech ..... RICHARD G. STREETER 1195
Preview of 22nd Annual Television Conference 1196
Highlights of 129th SMPTE Technical Conference and Equipment Exhibit 1199

INDEX TO SUBJECTS — January–December 1987 • Volume 96

ABSTRACTS

Abstracts of relevant papers published in other scientific and technical journals, Aug., 791

BOOK REVIEWS

Deutsche Laufbildprojektoren (German Movie Projectors), compiled by Herbert Tümmel, reviewed by Heinz H. Thiele, Feb., 206

Made in Japan: Akio Morita and Sony, *Akio Morito*, with *Edwin M. Reingold* and *Mitsuko Shimomura*, reviewed by Thomas W. Hope, June, 544

BOOKS, BOOKLETS, AND BROCHURES

Animated Algorithms, Feb., 206

Antenna Applications Reference Guide, *Richard C. Johnson* and *Henry Jasik*, eds., July, 710

Audio Production Techniques for Video, *David Miles Huber*, Oct., 1038

Brief items of timely interest, Feb., 206; Mar., 292; Apr., 430; July, 710; Oct., 1040; Nov., 1124

The Camcorder Handbook, *Gerald V. Quinn*, Oct., 1034

Career Opportunities in Television, Cable and Video, Mar., 292

Circuit Design for Electronic Instrumentation, *Darold Wobschall*, Oct., 1038

Computer Graphics for Designers, Mar., 290

Computers in Video Production, Mar., 290

Engineering Mathematics Handbook, July, 710

Engineers Notebook, Feb., 206

FCC Record, July, 710

Feedback Amplifier Principles, *Sol Rosenstark*, Apr., 430

Handbook for Sound Engineers: The New Audio Cyclopedia, Oct., 1034

ITVA Salary and Compensation Survey, Oct., 1040

The Laser Guidebook, Feb., 206

The Laser Library, Apr., 430

Mastering Electronics: Latest Technology, Apr., 429

National Electrical Code Handbook, 19th Ed., *Joseph F. McPartland*, ed., Oct., 1038

1987 Application Volume, Oct., 1038

Present and Future of Digital Audio, Apr., 429

Satellite Communications, *Stan Prentiss*, Oct., 1034

The 16SR, A Guide to the System, *John Fauer*, Apr., 429

Standard Handbook for Electrical Engineers, Mar., 290

Stereo Audio Technology for Television and Video, Apr., 429

Videotape Recording, Mar., 290

ERRATA

Directory for Members, May, 157; corrected Aug., 793

Progress Report, Apr., 385; corrected Aug., 793

LETTERS TO THE EDITOR

Re: The Use of l,l,l-Trichloroethane Chlorinated Solvent for Cleaning Motion-Picture Film, *Haig*, Oct., 1024

MOTION-PICTURE PAPERS

Archival

An Experimental Quality Control Program for Printing Archival Films, *Schou* and *Case*, Dec., 1180

Audio

Noise in Film-to-Video Transfers, *Powell* and *Kennel*, Jan., 16

Electronic Cinematography

Electronic Cinematography for Motion-Picture Film, *Mendrala*, Nov., 1090

Film

Eastman Color High-Speed Daylight Negative Films 5297 and 7297, *Spakowsky*, *Norris*, and *Powell*, July, 679

Producing Tints and Tones in Monochrome Films Using Modern Color Techniques, *Case*, Feb., 186

Graphics/Special Effects

Variable-Resolution Rendering System Extends TV Animation Graphics to Film and Print Media, *Lucht*, Sept., 837

History

Our Society — Its Beginning, Its Growth, *Alden*, July, 687

Standardization and Independence: The Founding Objectives of the SMPTE, *Staiger*, June, 532

Image Quality

High-Density Solid-State Image Sensor, *Chang et al.*, Dec., 1186

Image Quality: A Comparison of Photographic and Television Systems, *Schade*, June, 567

Laboratory

Modernization and Computerization of the Silver-Recovery Operation in a High-Volume Laboratory, *Baptista et al.*, Aug., 745

The Zoom Aerial 65mm Optical Printer (ZAP) System, *Edlund et al.*, July, 674

Production/Post-Production

A Film Studio Looks at HDTV, *Stumpf*, Mar., 247

Electronic Post-Production for Film and Videotape — An Update, *Schneider*, Dec., 1189

NEW PRODUCTS

Analyzers

Model 836TV analyzer, Tektronix, Inc., Apr., 432

Frequency and time-interval analyzer, HP 5371A, Hewlett-Packard Co., Dec., 1217

Spectrum analyzer, HP71201A, Hewlett-Packard Co., Jan., 62

Spectrum analyzers, Model 2710, Tektronix, Inc., Mar., 298; Models 2756P, 2753, and 2753P, June, 546; Models 494A and 494AP, July, 712

Audio Equipment

Amplifier, B-242, Studer Revox America Inc., Mar., 301

Amplifiers, BAA-350, BPA-350, BVA-350, BTS Broadcast Television Systems, Oct., 1042

Audio level indicator, ES-216, ESE, Jan., 62

Audio tape, R-120DM, Maxell Corp. of America, July, 716

Broadcast consoles, SL 5000 M Series, Solid State Logic, Ltd., Sept., 916

Digital recorders, PCM-3102, PCM-3202, Sony Corp. of America, Apr., 432

Loudspeaker, Acoustic Wave™ Cannon, Bose Corp., July, 714

Microphone preamplifier, Mic-PreEminence, Studio Technologies, Inc., June, 548

Recorder/reproducer, CTM-10, Otari Corp., Mar., 301

Batteries and Power Supplies

Battery brackets, QR-Beta-5, QR-DX-3000, Anton/Bauer, Jan., 62

Battery charger, Mobile Fast Charger, Anton/Bauer, Aug., 804

Battery charger, Paco Electronics U.S.A., Oct., 1044

Battery checker, Toshiba X-2001, Elmo Manufacturing Co., Oct. 1044

Battery power belt, F30/14EXFA, Frezzolini Electronics, Inc., Mar., 303

Power system, NP-1, Frezzolini Electronics Inc., Mar., 303

Cameras

Camcorder, ECR-8S, Elmo Manufacturing Corp., Nov., 1126

Camera, AK-400 CCD, Panasonic Broadcast Systems, Feb., 210

Camera, CP-65 Showscan, Showscan Film Corp., Jan., 61

Camera, CVC-5 CCD, Ampex Corp., Feb., 212

Camera, KCB 590 ENG/EFP, BTS Broadcast Television Systems, Inc., Aug., 794

Camera, Model 1800 CCD, Cohu Inc., Sept., 912

Camera, Platinum Panaflex, Panavision Inc., Mar., 296

Cameras, CCD, EC-101, EC-201, EC-301, Elmo Manufacturing Corp., June, 546

Cameras, Procam® KY-320B, JVC Co. of America, Feb., 210; KY-950B, July, 712; KY-80U, Aug., 794; TK-870, Oct., 1040

Camera Accessories

Adapter, camera-recorder, TM-8615, Telemetrics Inc., Sept. 918

Camera stand, M3, Bencher, Inc., Dec., 1228

Endoprobe, Optex, Mar., 305

Fluid head, Image 300, Alan Gordon Enterprises, Inc., Oct., 1044

Triaxial adapter, RS-T900, JVC Co. of America, Apr., 432

Viewfinder, Vidiflex 2, Fries Engineering, Inc., Apr., 433

Carts/Racks

Equipment carts, The Winsted Corp., July, 716

Equipment rack, V8701, The Winsted Corp., Apr., 436

Rack slide kits, F8200, F8201, The Winsted Corp., Mar., 303

Videotape truck, Model U5042, The Winsted Corp., Nov., 1132

Compact Disc

Compact disc player, A727, Studer Revox America Inc., July, 714
Digital disk recorder, A64, Abekas Video Systems, Inc., Sept., 912

Editing Equipment

Editing system, ACE™ 200, Ampex Corp., June, 546
Editor, Calaway CED MK II, Quanta Corp., Aug., 798
Enhancements to editing systems, 3.1 software and Turbo Kit, Ampex Corp., Jan., 61
Hardware and software enhancements, Chyron Corp., Apr., 434

Film/Laboratory

Film cleaner, KineStat, Kinetronics Corp., Dec., 1228
Film cleaner, VFC-6000, Technical Film Systems, Inc., July, 716
Film inspection system, Pulsar-HT, Research Technology International, Oct. 1042
Rewind machine, REW-2, Technical Film Systems, Inc., Feb., 214

General

Argus dolly, Alan Gordon Enterprises, Apr., 434
Degausser, Model 9210-A, Wide Range Electronics Corp., Dec., 1226
Degausser, Type II, Data Security, Inc., Apr., 433
Holder for Heden/Microforce zoom or focus motor, OpTex, June, 550
Pedestal, Miniped, Vinten Equipment Inc., Mar., 305
Reflection screen, Expand Reflectionscreen, AV-Huset AB, Jan., 62
Silver recovery system, Rotex MFM-105, Reconex, June, 548
Wireless receiver, Model 501 VR, Nady Systems, Inc., Sept. 916

Graphics/Effects

Animation and titling system, M-3000, JVC Co. of America, Sept., 912
Black burst generators, Times Six, Times Six Plus, Videotek Inc., Sept., 914
Character generator, D-2200, 3M, Sept., 914
Character generators, QCG-34, QCG-38, Quanta Corp., Aug., 798
Color corrector, CCS-4360 Prisma, For-A Corp. of America, Nov., 1128
Graphics computer, Dimension 32™, Quanta Corp., Aug., 798
Programmable effects system, SX-2000D, Digital Services Corp., June, 546
Special effects systems, A52, A53-D, Abekas Video Systems, Inc., Aug., 798
SpeedTrace™ tracing option for video graphics system, Ampex Corp., Feb., 210
Stereo sampler, Prophet 3000, Nov., 1130
Still store, ESS™-5, Ampex Corp., July, 712
Video graphic display and control system, VGA-10, Harrison Systems, Inc., June, 546

Lenses/Optics

Camera lens, Schwem Gyrozoom, OpTex, Feb., 214.
Lens, *f*2.8 macro, Optical & Textile Ltd., Dec., 1226
Zoom lenses, A20×7ESM, Fujinon, Inc., July, 714; A14×8, Aug., 802

Lighting and Lamps

Camcorder light, Micro-Lux, Cool-Lux Lighting Industries, Apr., 434
Fresnel lights, Arri Fresnel Series, Apr., 434
Lamps, Brite Beam™, GTE, Oct., 1046; BriteArc™, Dec., 1226
Light filter, LL-D™, Tiffen Manufacturing Corp., Oct., 1046
Lighting control system, Unitrol, Union Connector Co., Mar., 303
Lighting system, MSETALIGHT™, MSETA-USA, July, 714
Lights, Video 1001, Video 302, Osram Corp., Sept., 916
Reflector, Aconic, Xetron Corp., Dec., 1226
Softlight, Multipar 8 HMI, LTM Corp. of America, Aug., 802
Softlights, Video Softouch™, Comprehensive Video Supply Corp., June, 550
Stage and studio lamps, SureSpot™, North American Philips Lighting Corp., Feb., 214
Sun Gun, LTM Corp. of America, Aug., 802

Microphones/Headsets

Lavalier microphone, TRAM TR-50, Alan Gordon Enterprises Inc., Dec., 1226
Microphones, C-562, C-522, AKG Acoustics, Inc., Dec., 1222
Microphone receiver, R-33 PRO PLUS, Cetec Vega, Aug., 802
Microphone systems, W1020, W10BT, Shure Brothers Inc., Feb., 214
Microphone/transmitter series, ProStar HT-400, Telex Communications, Inc., Sept., 918
Shotgun microphone, SM89, Shure Brothers, Inc., Apr., 434

Mixers

Audio mixer, C279, Studer Revox America Inc., July, 714
Audio mixer, VTM-800, Film-Tech Electronics Ltd., Dec., 1222
Dc/dc converter, Model 7409, Caltex Manufacturing Co., Inc., Oct., 1044
Mixer, FME, AKG Acoustics, Inc., Dec., 1222
Mixer, Model 160, Fostex Corp. of America, Mar., 298
Multitrack cassette/mixer, Model 460, Fostex Corp. of America, Aug., 798
Stereo converter, KT-904Post, Kintek Inc., July, 716
Stereo mixer, SQN-4S, Audio Services Corp., Nov., 1130
Stereo mixers, Sonosax SX-PR Series, Professional Sound Corp., Dec., 1218
Video production mixer, PVM-500, For-A Corp. of America, Jan., 61

Monitors

Broadcast monitors, 2600 Series, Conrac Display Products Group, Feb., 212
Cartridge monitor, DCM-1, ITC/3M, Feb., 214
Color monitor, VM-R190U, JVC Co. of America, Sept., 912
Graphic display monitors, CDCT 6000 Series, Barco Industries, July, 712
Phase monitor, AM-3B, B&B Systems, June, 548
Studio monitors, C Series, Urei Electronic Products, June, 548
Waveform monitor, WFM-560, Magni Systems, Inc., Sept., 914

Oscilloscopes

Portable oscilloscope, Model 2225, Tektronix, Inc., Jan., 62

Production/Post-Production

Post-production workstation machine, Silver Videographic Workstation, 3M, June, 546
System controller, SC-4008, Studer Revox America Inc., Mar., 301
Video production system, ProView™, Panasonic Industrial Co., Aug., 794
Video production system, Strata-7, Central Dynamics Ltd., Feb., 212

Projection Equipment

Motion-picture projectors, 35mm, Alan Gordon Enterprises, Inc., Nov., 1126
Super 8 stereo projector, Model 708 EL, Beaulieu Industries of France, Jan., 62
Video projector, Esprit 1000, Electronic Systems Products Inc., June, 546
Video projector, VS-2000, Mitsubishi Electric Sales America, Inc., May, 503

Signal Processing/Transmission Equipment

Demodulators, VSD Series, Barco Industries, Inc., July, 714
Encoder, ENC-3, Communications Specialties, Inc., Oct., 1042
Encoder, Model 6051, Crosspoint Latch Corp., Mar., 301
Encoder, NTSC, CV-25N, Grass Valley Group Inc., Sept., 914
Equalizer, MEP-250C, Sontec Electronics, Dec., 1218
Freeze-frame equipment, Model 286 and Video Briefcase®, Colorado Video Inc., July, 712
Modulator, VSBM 1000, Barco Industries, Inc., July, 714
NTSC encoder, Model CTE-N, Faroudja Laboratories, May, 503
Signal generators, Model 1515, Magni System, Inc., Feb., 212; Model 2015PL, July, 712
Transmission system, Series 87 EZ-LINK™, Grass Valley Group Inc., Oct. 1040
UHF transmitter, PCU-930SSW, NEC America, Inc., May, 503
VHF transmitter, PCN-1430AL/1, NEC America, Inc., Aug., 798
Video transmitter, Model 3290/91 ATS, Grass Valley Group Inc., Feb., 212

Switchers

AVC Century™ Series switchers, Ampex Corp., Jan., 61
Post-production switcher, KM-3000U, JVC Co. of America, Oct., 1040
Production switcher, PVM-600, For-A Corp. of America, Aug., 798
Protection switch, 87DS3-PSW, Grass Valley Group Inc., Feb., 212
Routing switchers, Dynasty and Dynasty 100 Series, Dynair Electronics, Inc., Aug., 798
Routing switchers, TEN-20™, 20-TEN™, Horizon™, Grass Valley Group, Sept., 914
Routing switchers, Series 500, NEC America, Inc., July, 712
Switcher, T-8, Abekas Video Systems, Inc., Oct., 1042
Switchers, BVS/AS-350, BSX-350, BTS Broadcast Television Systems, Inc., Nov., 1128
Video production switcher, Model 210A, Ross Video Ltd., May, 503

Synchronizers

Frame synchronizer, FA-800 Autocor, For-A Corp. of America, Jan., 61
Frame synchronizer, KM-F250U, JVC Co. of America, Aug., 794

Tape/Cassettes

Betacam SP videotape, Ampex 298, Ampex Corp., Sept., 910
Betacam videotape, H321B, Fuji Photo Film U.S.A., Inc., Oct., 1046
Sprinter tape, TF20-2134, Maxell Corp. of America, Sept., 918
Super VHS cassettes, ST-120, ST-60, ST-30, Maxell Corp. of America, Sept., 918
VHS tape, Dynarec "Editing Master," JVC Co. of America, Feb., 214
Video duplication system, T-700, Otari Corp., Nov., 1130
Videotape, M401, Fuji Photo Film. U.S.A., Inc., Feb., 214

Telecine

Telecine, TransVideo l6, Elmo Manufacturing Corp., Mar., 296
Telecine feature, Digiscan 4:2:2, Rank Cintel, Inc., Aug., 798

Tests and Measurements

Screen brightness meter, Cine-Spot™, Spectra Cine, Sept., 916
TV/video-sync pod, HP 1133A, Hewlett-Packard Co., Nov., 1128
Vectorscope, VS-560, Magni Systems, Inc., Sept., 914

Time-Base Correctors

Digital time-base correctors, FA-420, For-A Corp. of America, Sept., 914; FA-450, Dec., 1217
Time-base corrector, Dub-TBC+, Prime Image, Inc., Nov., 1128
Time-base corrector, T-220, Microtime, Inc., Sept., 914

Time-Code Equipment

Time-code and film edge number calculator, Voodoo Technology, Sept., 918
Time-code/FM processor, TC-50, Otari Corp., Sept., 916
Time-code reader, TCR-3300, For-A Corp. of America, Dec., 1217
Time-code window generator, WG-50, Horita Co., June, 546
Time-code phase comparitor, Quanta Corp., Aug., 798

Transfer Systems

Digital tape transfer console, DTC-1, Rupert Neve Inc., Feb., 212

Tripods, Mounts, and Heads

Camera head, Schulz Filmtechnik S107, Pannonia International Imports, Aug., 802
Fluid head, Miller 20, Miller Fluid Heads (USA), June, 550

Videocassette Recording

Digital video recorder, SR-10, NEC America, Inc., July, 712
Editing videocassette recorders, KR-M860U, KR-M800U, JVC Co. of America, Dec., 1217
Recorders, A807, A820, Studer Revox America Inc., Feb., 212
Recording console, Model 8233, Neve Electronics International Ltd., Feb., 212
Videocassettes, H521E and H521EBR, Fuji Photo Film U.S.A., Inc., July, 716; S-VHS, Aug., 804

Videotape Recording/Playback

Machine control system, Model 422, 3M, Feb., 212
Recorders, Betacam™ SP, Ampex Corp., Sept., 910
Recorder/player, BCB 35, BTS Broadcast Television Systems, Inc., Aug., 794
Recorder/player, BVU-950, Sony Corp. of America, Sept. 910
Recorder/player, CVR-40, Ampex Corp., Feb., 210
Studio VTR, BCB 75, BTS Broadcast Television Systems, Inc., Aug., 794
Tape duplicators, FP 200, FP 80, Future Productions, Inc., Apr., 433

NEWS

Awards and Honors

ASC award for Outstanding Achievement in Cinematography, Feb., 204
CineMills Corp. honored by American Society of Lighting Directors with special achievement award, Feb., 204
Ray Dolby honored with "Man-of-the-Year" award by International Tape/Disc Association, June, 541
SMPTE members Harold J. Eady and Burton Stone honored by BKSTS, Sept., 900

Companies

Abekas Video Systems, Inc., new regional office opened, Nov., 1119
Agfa-Gevaert AG, joint venture with Philips N.V. and Du Pont Co., Oct., 1028
Ampex Corp., announcement of availability of serial protocol of ADO system, May, 498; purchased by Lanesborough Corp., July, 708
Arriflex Corp., acquisition of Kinotone, Inc., Oct., 1030
Chyron Corp., establishment of new facility, Sept., 902
Cinema Products Corp., relocated, Mar., 288
Colorado Video, Inc., relocated, May, 498
Du Art Laboratories, 65th anniversary celebration, Dec., 1216
Dynair Electronics, Inc., in joint agreement with Artel Communications Corp., June, 542
EECO, Inc., acquisition of Acquis Corp., Jan., 56
Fuji Photo Film U.S.A., Inc., joined Museum of Broadcasting search for lost television programs, June, 542
Ikegami Electronics (U.S.A.), Inc., new center opened, Apr., 426
Innovative Television Equipment, established sales office, June, 542
Lee International, acquisition of Panavision, Nov., 1119
L.T.M. Corp. of America, new office opened, Jan., 56
Matrix Corp., merger of MTM Div. and Rangertone Research Inc., Apr., 426
Merlin Engineering Works, restores Ampex VR-1000, Mar., 286
National Cinema Supply Corp., training program and technical seminars, Sept., 902
Novo Communications Inc., acquired by H. Eady and investors group, Mar., 288
Optical Systems and Engineering Short Courses Inc., lectures on design and engineering of optical systems, Dec., 1216
Plastic Reel Corp. of America, relocation of sales and service operation, Jan., 56
Quanta Corp., acquisition of Calaway Engineering, Feb., 204
Rank Cintel, Inc., new national headquarters, Nov., 1119
RCA, new laser development, Jan., 56
Research Technology International, formation of new company with Schmidt Audio Visual, May, 498
Rock Solid Productions, expansion of Facilite Rock Solid, Mar., 288
David Sarnoff Research Center, transferred to SRI International, June, 542
Schmidt Audio Visual, formation of new company with Research Technology International, May, 498
Sony Professional Video Division, relocation, May, 498
Tektronix, Inc., component test signals available, Jan., 56
US JVC Corp., new company, JVC Professional Products Co., Dec., 1216
Videotek Inc., new service available, Nov., 1119
Vinten Equipment Inc., relocation of U.S. headquarters, Mar., 288

Education

Brooklyn College Television Center, on-campus graphics and animation complex, Jan., 56
RIT, establishment of archive for multi-image productions, Jan., 56
University of California at Los Angeles, course in geometric optics, May, 498
University of California at Santa Barbara, courses in signal processing, May, 498

Meetings and Conferences

ASA, 114th meeting, Sept., 900
HDTV '87, call for papers, Feb., 204
IBC '88, international broadcasting convention, SMPTE representation, Aug., 790
ICSCS-8, call for papers, Sept., 902
IEE, international conference, SMPTE participation, Jan., 56
IERE, Third International Conference on Television Measurements, June, 542
IES/NA, announcement of general agenda at 1987 Conference, June, 542
NCGA, 1988 International Computer Animation Competition, call for entries, Aug., 790
OIS '87, 7th Annual Conference and Exhibition, Nov., 1118
Photokina Professional Media 1988, Nov., 1118
RIT, conference, Medical Electronic Imaging: Display and Recording, Sept., 900
SID, call for papers for 1988 International Symposium, Oct., 1028
SPSE, 1988 International Symposium and Exposition on Electronic Imaging Devices and Systems, July, 708; 41st Annual Conference Nov., 1118
USC/SMPTE, tutorial seminar, May, 498

Other Organizations

ATSC, to conduct HDTV broadcast tests, July, 708
AMPAS, 14th Annual Student Film Awards competition, Feb., 204
ASC, banquet and award presentation, Feb., 204
PBS, opens new technical center, June, 541

People

Baptista, John, appointed vice-president at CFI International, June, 542
Birkmaier, Craig J., formed marketing consultancy, Jan., 56
Buynak, William, appointed vice-president at Chyron Corp., Sept., 902
Carlsen, Donald A., named regional manager of Aurora Systems, Jan., 56
Chan, Curtis J., named vice-president of marketing at Centro Corp., Dec., 1216
Dennay, C. W., appointed director of engineering for British Broadcasting Corp., June, 542
Ekrom, Roy H., named president of Garrett Corp., Jan., 56
Hannafin, James, D., named vice-president and general manager at Technicolor, June, 542
Harris, John F., appointed executive vice-president and general manager of Centro Corp., Dec., 1216
Holman, Tomlinson, teaching film sound at School of Cinema-Television, Univ. of Southern California, Oct., 1030
Hope, Vincent W., named president of Hope Reports, Inc., Oct., 1030
Jorgensen, Bob, appointed applications engineer for Dynair Electronics, Inc., Nov., 1119
Kelly, James M., appointed division manager of Allied Film & Video, Jan., 56
Lowten, Peter C., appointed director of product operations for Quanta Corp., July, 708
Maase, Daniel F., appointed manager at Varian Associates, Apr., 428
McAll, Bob, named eastern region manager for Dynair Electronics, Apr., 426
McClimont, John, named sales manager at Conrac Display Products Group, May, 502; appointed manager of broadcast sales, June, 542
Meek, James S., named product manager at Dynair Electronics, May, 498
Meyer, Thomas R., named director of engineering at Dynair Electronics, May, 498
Mobsby, Ray, appointed secretary of BKSTS, Oct., 1030
Neuhauser, Robert G., announcement of retirement, Mar., 288
Pearson, Vern A., named regional manager at Dynair Electronics, July, 708
Sarafian, Steve, appointed sales manager of Lyon Lamb Video Animations Systems, Inc., Jan., 56
Sirinsky, Richard, named vice-president and director of sales at CMX Corp., Apr., 428
Smith, Steve, appointed marketing manager, Ampex Corp., May, 502
Steinberg, Charles A., appointed president and CEO at Ampex Corp., Jan., 56
Washington, Morris, named manager at Panasonic Broadcast Systems, Apr., 428
Wilson, Robert L., elected to Board of Directors of ITA, Apr., 428

Standards

See Standardization.

OBITUARIES

Buxton, Allan R. R., Dec., 1216
Einhaus, Clarence G., July, 710
Hanson, Wesley T., Jr., Aug., 792
Keli, Ray Davis, Apr., 431
Kinzle, Harold W., Jan., 60
Livadary, John Paul, July, 710
Malkames, Donald, Feb., 208
Reeves, Hazard E., Oct., 1032
Scheib, Harold A., Jan., 58
Watson, Waldon O., Jan., 58

REPORTS

Chicago Section Holds Eleventh All-Day Meeting, Oct., 977
  Keynote speech, *Young*, Oct., 980
Hollywood Section/USC Seminar on Electronic Post-Production for Film and Videotape, *Schneider*, July, 692
Japan Trip: A Message from the President and Delegates, *Kennedy*, Nov., 1099
  The SMPTE in a Changing World, keynote address for HDTV Production Symposium, *Kennedy*, Nov., 1106
  An Update on the Television and Film Aspects of HDTV, *Streeter*, Nov., 1108
  Open House Exhibition at NHK Technical Research Laboratories, Nov., 1111
Mini-Conference of the Rochester, Montreal/Quebec, Ottawa, and Toronto Sections, Aug., 782
1987 Sections and Engineering Training Seminars, *Robinson* and *Becker*, Aug., 786
Rocky Mountain Section All-Day Seminar, Jan., 52
SMPTE Supports All-Day Technical Meeting, Rome, Italy, Mar., 266
SMPTE a Participant at NAB '87, June, 539
SMPTE Participates in 1987 Montreaux Symposium and 10th International BKSTS Conference, Oct., 986
Toronto Section Meeting Transmitted by Satellite, May, 488
Washington, D.C., Section All-Day Meeting, Mar., 274
Type-C Format Audio Level Interchange Problems in Broadcast Operations: A Report from the SMPTE Study Group on Type-C Audio Levels on Interchange, *Cavanagh*, Sept., 851

SECTION MEETINGS

Atlanta, Jan., 44; Feb., 199; Apr., 420; May, 492; June, 540; Aug., 788; Sept., 896; Dec., 1215
Australia, Jan., 44; June, 540; July, 705; Aug., 788; Nov., 1114
Baylor University, July, 705
Chicago, May, 492; June, 440
Dallas/Ft. Worth, Apr., 420; Aug., 788
Detroit, Jan., 44; Feb., 199; Mar., 278; Apr., 420; May, 492; June, 540; July, 705; Aug., 788; Sept., 896; Dec., 1215
Florida/Caribbean, Feb., 199; Mar., 278; May, 492; June, 540; July, 705
Hollywood, Jan., 46; May, 492, 494; Aug., 788; Dec., 1215
Houston, Jan., 46; Feb., 200; Apr., 420; May, 494; June, 540; July, 705; Aug., 788; Sept., 896; Dec., 1215
Montreal/Quebec, Jan., 46; Feb., 200; Mar., 278; May, 494; June, 540; July, 706
Nashville, Feb., 200; Mar., 278; June, 540; July, 706; Aug., 789; Sept., 896; Oct., 1024
New England, Apr., 420; May, 494; July, 706; Sept., 896; Nov., 1114; Dec., 1215
New York, Apr. 420
Ohio, Jan., 46; Feb., 200; Mar., 282; Apr., 422; May, 494; June, 540; July, 706; Oct., 1024
Ottawa, Sept., 898
Rochester, Feb., 200; Mar., 282; Apr., 422; May, 494; June, 541; July, 706; Sept., 896
Rocky Mountain, Feb., 202; Mar., 282; June, 541; Sept., 898
San Francisco, Feb., 202; Apr., 422; May, 494; July, 706; Aug., 789; Sept., 898; Oct., 1024; Nov., 1114; Dec., 1215
Toronto, Jan., 48; Feb., 202; Apr., 424; June, 541; July, 706; Aug., 789; Sept., 898; Dec., 1215
Washington, D.C., Jan., 48; Apr., 424; June, 541; July, 708

SMPTE ACTIVITIES

Annual Meeting

Minutes of Annual Meeting, October 25, 1986, Jan., 48

Awards/Honors

New Fellows, Jan., 101
SMPTE Awards, 1986, Jan., 91
SMPTE receives Emmy Award for D-1 Standardization, Dec., 1194
  Acceptance speech, *Streeter*, Dec., 1195

Constitution and Bylaws

Annual meeting of voting members, Oct. 25, 1986, minutes, Jan., 48
Constitution and Bylaws, corrected version, Aug., 773
Special meeting of voting members, Apr. 27, 1987, announcement, Mar., 270; minutes, Aug., 773

Education

USC/SMPTE, tutorial seminar, May, 498

Engineering Committees/Working Groups

Engineering Subgroup Committees, announced, Aug., 790

Financial

1986 Financial Report, Oct., 975

General

SMPTE Reference Library, technical books wanted, Aug., 790
Student chapter formed at UCLA, Nov., 1118

Meetings and Conferences

21st Annual TV Conference, Jan., 40; Report, Apr., 391; Synopses of Papers, Apr., 402
22nd Annual TV Conference, July, 704; call for papers, Aug., 790, Sept., 900; preview, Dec., 1196
128th Technical Conference, Jan., 75
  Honors and Awards, Jan., 91
  Synopses of Papers, Jan., 121
129th Technical Conference, preview, Feb., 198; update, Mar., 264; May, 488; June, 537; July, 703; Aug., 781; tentative program, Sept., 854; Oct., 988; highlights, Dec., 1199
  Exhibit Directory, Sept., 866; Oct., 992
Annual meeting of voting members, Oct. 25, 1986, minutes, Jan., 48
Chicago Section, eleventh all-day meeting, Oct., 977
Hollywood Section/USC Seminar on Electronic Post-Production for Film and Videotape, July, 692
Mini-Conference of the Rochester, Montreal/Quebec, Ottawa, and Toronto Sections, Aug., 782
New England Section, first half-day meeting, Aug., 788
1987 Sections and Engineering Training Seminars, Aug., 786
Rocky Mountain Section, all-day seminar, Jan., 52

Special meeting of voting members, Apr. 27, 1987, announcement, Mar., 270; minutes, Aug., 773
Washington, D.C., Section, all-day meeting, Mar., 274; half-day meeting, Aug., 790

Membership

Directory for Members, May, Part II
New members since Directory, Dec., 1205
Sustaining Members, new, Sept., 904

Officers and Governors

Annual Elections, Dec., 1193
Sections Officers and Managers as of July 1, 1987, Aug., 780

Progress Report

1986 Progress Report, Foreward, *French*, Apr., 326; Engineering Report, *Streeter*, Apr., 327; Motion Pictures, *Spring*, April 332; Television, *Haney*, Apr., 346; Educational, *Young*, Apr., 389
1987 Progress Report, Maurice L. French appointed committee chairman; call for contributions, Sept., 900

Publications

Directory for Members, May, Part II
Index, annual, Dec., Part II
SMPTE Book, *Television Technology: A Look Toward The 21st Century*, Apr., 426

STANDARDIZATION

See also SMPTE Activities, Engineering Committees.

Type-C Format Audio Level Interchange Problems in Broadcast Operations: A Report from the SMPTE Study Group on Type-C Audio Levels on Interchange, *Cavanagh*, Sept., 851

TELEVISION PAPERS

Audio

The Audio Side of Videocassette Duplication, *Brown*, Mar., 230
Digital Audio Post-Production: Sound Editing Transformed, *Wolvington*, Jan., 34
Formatting and Coding the Audio in the DTTR, *Davies*, Feb., 171
Noise in Film-to-Video Transfers, *Powell* and *Kennel*, Jan., 16
Rotating Digital Audio Tape (R-DAT): A Format Overview, *Dare* and *Katsumi*, Oct., 943

Camcorders

A New 510-Element CCD Camcorder for ENG, *Thorpe* and *Tamura*, June, 518

Cameras and Accessories

Minimum Resolvable and Minimum Detectable Contrast Prediction for Monochrome Solid-State Imagers, *Frame*, May, 454
An Overview of Solid-State Sensor Technology, *Sadashige*, Feb., 180
Photoconductors Utilized in TV Camera Tubes, *Neuhauser*, May, 473

Component Television

A Component Analog News Studio Center, *Deaves*, Nov., 1068
Product Implementation of the 4:2:2 Component Digital Format, *Chan* and *Eguchi*, Oct., 949

Digital Technology

Digital Audio Post-Production: Sound Editing Transformed, *Wolvington*, Jan., 34
Digital Television at 45 Mbits/Sec, *Brainard* and *Netravali*, Jan., 4
The SMPTE D-1 Format and Possible Scanner Configurations, *Eguchi*, Feb., 166
Transition to Digital Recording: An Emerging Trend Influencing All Analog Signal Recording Applications, *Sadashige*, Nov., 1073
The World's First All-Digital Television Production, *Oudin*, Jan., 11

General

The Computer as a Camera-Operation and Image-Quality Manager, *Van Roessel* and *Tienkamp*, Nov., 1079
Cultivating the Wasteland with Technology, *Green*, Aug., 770
Locus Display of Moving Sports Players, *Okui et al.*, July, 667
New Frontiers: The Next 15 Years, *Sherlock*, Nov., 1095
New Technology and the Broadcaster, *Berry* and *Thomas*, Oct., 971
Television: The Challenge of the Future, *Flaherty*, Sept., 846

Graphics/Special Effects

Variable-Resolution Rendering System Extends TV Animation Graphics to Film and Print Media, *Lucht*, Sept., 837

High and Extended-Definition Television

A Proposal for a New High-Definition NTSC Broadcast Protocol, *Iredale*, Oct., 959
A Route to Higher-Definition Television with DBS, *Forrest*, Nov., 1087
Gamma and Dynamic Range Needs for an HDTV Electronic Cinematography System, *Mathias*, Sept., 840
HDTV Bandwidth Reduction by Adaptive Subsampling and Motion-Compensation DATV Techniques, *Thomas*, May, 460
HDTV Colorimetry and Gamma Considering the Visibility of Noise and Quantization Errors, *Schäfer* and *Kauff*, Sept., 822
HDTV Compatible Transmission System, *Glenn* and *Glenn*, Mar., 242
Improved Television Systems: NTSC and Beyond, *Schreiber*, Aug., 734
Improving NTSC to Achieve Near-RGB Performance, *Faroudja* and *Roizen*, Aug., 750

History

Our Society — Its Beginning, Its Growth, *Alden*, July, 687
Video Recording: A History, *Stanton* and *Stanton*, Mar., 253

Image Quality

Image Quality: A Comparison of Photographic and Television Systems, *Schade*, June, 567

Production/Post-Production

Bibliography: Video Production Technologies, *Stanton* and *Stanton*, Aug., 762
Digital Audio Post-Production: Sound Editing Transformed, *Wolvington*, Jan., 34
Electronic Post-Production for Film and Videotape — An Update, *Schneider*, Dec., 1189
Evolution During Revolution, *Gougeon*, July, 684
An Optical Routing System for Tomorrow's Television Studio Centers, *Oliphant*, *Marsden*, and *Zubrzycki*, July, 660
Parallel Component Analog Video Timing and Amplitude Considerations, *Acker*, July, 654
Production and Post-Production Experience with ½-in. Camera Recorders in the CBC, *Kaiser* and *Quinn*, Jan., 28

Signal Processing/Transmission

Bit-Rate Reduction in the Transmission of High-Definition Television Signals, *Kishimoto*, *Sakurai*, and *Ishikura*, Feb., 191
A Proposed Universal Signal-Processing System, *Murakami*, *Enami*, and *Yagi*, June, 527
Real-Time Video Signal Processor, *Enami*, *Yagi*, and *Murakami*, Dec., 1158
Two TV Signals on a 45 Mbit/sec Channel, *Brainard* and *Netravali*, Sept., 834

Video Recording

The Composite Digital Format and Its Applications, *Engberg et al.*, Oct., 934
Considerations for Improvement of an HDTV Digital VTR, *Eto*, *Umemoto*, and *Kawamura*, Feb., 177
Error-Correction Strategy for the New Generation of 4:2:2 Component VTRs, *Gillard*, Dec., 1173
High-Quality Magneto-Optic Disk Video Recording, *Nomura et al.*, Nov., 1062
A New Small-Format VTR Using an 8mm Cassette, *Kawamura et al.*, May, 466
Product Implementation of the 4:2:2 Component Digital Format, *Chan* and *Eguchi*, Oct., 949
A Review of the Signal Format Specification for the 4:2:2 Component Digital VTR, *Wilkinson*, Dec., 1166
The SMPTE D-1 Format and Possible Scanner Configurations, *Eguchi*, Feb., 166
Video Recording: A History, *Stanton* and *Stanton*, Mar., 253

INDEX TO AUTHORS — January–December 1987 • Volume 96

A

Acker, David E., Parallel Component Analog Video Timing and Amplitude Considerations, July, 654
Alden, Alex E., Our Society — Its Beginning, Its Growth, July, 687

B

Baptista, J. L., et al., Modernization and Computerization of the Silver-Recovery Operation in a High-Volume Laboratory, Aug., 745
Berry, Max, and **Thomas, Robert,** New Technology and the Broadcaster, Oct., 971
Brainard, R. C., and **Netravali, A. N.,** Digital Television at 45 Mbits/Sec, Jan., 4
——, and **Netravali, A. N.,** Two TV Signals on a 45 Mbit/sec Channel, Sept., 834
Brown, James W., The Audio Side of Videocassette Duplication — A Tutorial, Mar., 230
Brush, R., et al., The Composite Digital Format and Its Applications, Oct., 934
Buttram, D., et al., Modernization and Computerization of the Silver-Recovery Operation in a High-Volume Laboratory, Aug., 745

C

Case, Dominic, and **Schou, Henning,** An Experimental Quality Control Program for Printing Archival Films, Dec., 1180
——, Producing Tints and Tones in Monochrome Films Using Modern Color Techniques, Feb., 186
Chan, Curtis, and **Eguchi, Takeo,** Product Implementation of the 4:2:2 Component Digital Format, Oct., 949
Chang, W. C., et al., High-Density Solid-State Image Sensor, Dec., 1186

D

Dare, Peter A., and **Katsumi, Ryuichi,** Rotating Digital Audio Tape (R-DAT): A Format Overview, Oct., 943
Davies, Kenneth P., Formatting and Coding the Audio in the DTTR, Feb., 171
Deaves, Graham J., A Component Analog News Studio Center, Nov., 1068

E

Edlund, R., et al., The Zoom Aerial 65mm Optical Printer (ZAP) System, July, 674
Eguchi, Takeo, and **Chan, Curtis,** Product Implementation of the 4:2:2 Component Digital Format, Oct., 949
——, The SMPTE D-1 Format and Possible Scanner Configurations, Feb., 166
Enami, K.; Murakami, K.; and **Yagi, N.,** A Proposed Universal Signal-Processing System, June, 527
——; **Yagi, N.;** and **Murakami. K.,** Real-Time Video Signal Processor, Dec., 1158
Engberg, E., et al., The Composite Digital Format and Its Applications, Oct., 934
Eto, Yoshizumi; Umemoto, Masuo; and **Kawamura, Toshiaki,** Considerations for Improvement of an HDTV Digital VTR, Feb., 177

F

Faroudja, Yves, and **Roizen, Joseph,** Improving NTSC to Achieve Near-RGB Performance, Aug., 750
Flaherty, Joseph A., Television: The Challenge of the Future, Sept., 846
Forrest, John R., A Route to Higher-Definition Television with DBS, Nov., 1087
Frame, Wayne W., Minimum Resolvable and Minimum Detectable Contrast Prediction for Monochrome Solid-State Imagers, May, 454

G

Gillard, C. H., Error-Correction Strategy for the New Generation of 4:2:2 Component VTRs, Dec., 1173
Glenn, William E., and **Glenn, Karen G.,** HDTV Compatible Transmission System, Mar., 242
Glenn, Karen G., and **Glenn, William E.,** HDTV Compatible Transmission System, Mar., 242
Gougeon, Guy, Evolution During Revolution, July, 684
Grafton, D., et al., The Zoom Aerial 65mm Optical Printer (ZAP) System, July, 674
Green, Richard R., Cultivating the Wasteland with Technology, Aug., 770

H

Haney, Frank J., 1986 Progress Report — Television, Apr., 346

I

Inatsu, M., et al., A New Small-Format VTR Using an 8mm Cassette, May, 466
Iredale, Richard J., A Proposal for a New High-Definition NTSC Broadcast Protocol, Oct., 959
Ishikura, Akihiko; Kishimoto, Ryozo; and **Sakurai, Naoya,** Bit-Rate Reduction in the Transmission of High-Definition Television Signals, Feb., 191

K

Kaiser, Paul, and **Quinn, Stanley,** Production and Post-Production Experience with ½-in. Camera Recorders in the CBC, Jan., 28
Kasai, S., et al., A New Small-Format VTR Using an 8mm Cassette, May, 466
Katsumi, Ryuichi, and **Dare, Peter A.,** Rotating Digital Audio Tape (R-DAT): A Format Overview, Oct., 943
Kauff, Peter, and **Schäfer, Ralf,** HDTV Colorimetry and Gamma Considering the Visibility of Noise and Quantization Errors, Sept., 822
Kawamura, Toshiaki, et al., A New Small-Format VTR Using an 8mm Cassette, May, 466
——; **Eto, Yoshizumi;** and **Umemoto, Masuo,** Considerations for Improvement of an HDTV Digital VTR, Feb., 177
Kennel, Glenn L., and **Powell, Steven J.,** Noise in Film-to-Video Transfers, Jan., 16
Kimoto, K., et al., High-Quality Magneto-Optic Disk Video Recording, Nov., 1062
Kishimoto, Ryozo; Sakurai, Naoya; and **Ishikura, Akihiko,** Bit-Rate Reduction in the Transmission of High-Definition Television Signals, Feb., 191

L

Lemoine, M., et al., The Composite Digital Format and Its Applications, Oct., 934
Lucht, Philip, Variable-Resolution Rendering System Extends TV Animation Graphics to Film and Print Media, Sept., 837

M

Magnusson, S., et al., The Composite Digital Format and Its Applications, Oct., 934
Marsden, Richard; Oliphant, Andrew; and **Zubrzycki, John,** An Optical Routing System for Tomorrow's Television Studio Centers, July, 660
Mathias, Harry, Gamma and Dynamic Range Needs for an HDTV Electronic Cinematography System, Sept., 840
Mendrala, James A., Electronic Cinematography for Motion-Picture Film, Nov., 1090
Morrison, F., et al., The Composite Digital Format and Its Applications, Oct., 934
Murakami, K., et al., Locus Display of Moving Sports Players, July, 667
——; **Enami, K.;** and **Yagi, N.,** A Proposed Universal Signal-Processing System, June, 527
——; **Enami, K.;** and **Yagi, N.,** Real-Time Video Signal Processor, Dec., 1158

N

Nakagawa, S., et al., High-Quality Magneto-Optic Disk Video Recording, Nov., 1062
Netravali, A. N., and **Brainard, R. C.,** Digital Television at 45 Mbits/Sec, Jan., 4
——, and **Brainard, R. C.,** Two TV Signals on a 45 Mbit/sec Channel, Sept., 834
Neuhauser, Robert G., Photoconductors Utilized in TV Camera Tubes, May, 473
Nichols, D. N., et al., High-Density Solid-State Image Sensor, Dec., 1186
Nomura, T, et al., High-Quality Magneto-Optic Disk Video Recording, Nov., 1062
Norris, J. C.; Spakowsky, S. W.; and **Powell, S. J.,** Eastman Color High-Speed Daylight Negative Films 5297 and 7297, July, 679

O

Ohzeki, K., et al., Locus Display of Moving Sports Players, July, 667
Okui, M., et al., Locus Display of Moving Sports Players, July, 667
Oliphant, Andrew; Marsden, Richard; and **Zubrzycki, John,** An Optical Routing System for Tomorrow's Television Studio Centers, July, 660
Oudin, Michel, The World's First All-Digital Television Production, Jan., 11

P

Powell, S. J.; Spakowsky, S. W.; and **Norris, J. C.,** Eastman Color High-Speed Daylight Negative Films 5297 and 7297, July, 679
——, and **Kennel, Glenn L.,** Noise in Film-to-Video Transfers, Jan., 16

Q

Quinn, Stanley, and **Kaiser, Paul,** Production and Post-Production Experience with ½-in. Camera Recorders in the CBC, Jan., 28

R

Roberts, M., et al., Modernization and Computerization of the Silver-Recovery Operation in a High-Volume Laboratory, Aug., 745
Rodal, D., et al., The Composite Digital Format and Its Applications, Oct., 934
Roizen, Joseph, and **Faroudja, Yves,** Improving NTSC to Achieve Near-RGB Performance, Aug., 750
Ryan, D., et al., The Composite Digital Format and Its Applications, Oct., 934

S

Sadashige, Koichi, An Overview of Solid-State Sensor Technology, Feb., 180
——, Transition to Digital Recording: An Emerging Trend Influencing All Analog Signal Recording Applications, Nov., 1073
Sakurai, Naoya; Kishimoto, Ryozo; and **Ishikura, Akihiko,** Bit-Rate Reduction in the Transmission of High-Definition Television Signals, Feb., 191
Sato, H., et al., A New Small-Format VTR Using an 8mm Cassette, May, 466
Schäfer, Ralf, and **Kauff, Peter,** HDTV Colorimetry and Gamma Considering the Visibility of Noise and Quantization Errors, Sept., 822
Schneider, Arthur, Electronic Post-Production for Film and Videotape — An Update, Dec., 1189
Schou, Henning, and **Case, Dominic,** An Experimental Quality Control Program for Printing Archival Films, Dec., 1180
Schreiber, William F., Improved Television Systems: NTSC and Beyond, Aug., 734
Sherlock, Michael J., New Frontiers: The Next 15 Years, Nov., 1095
Shirata, K., et al., Locus Display of Moving Sports Players, July, 667
Spakowsky, S. W.; Norris, J. C.; and **Powell, S. J.,** Eastman Color High-Speed Daylight Negative Films 5297 and 7297, July, 679
Spring, L. John, Jr., 1986 Progress Report — Motion Pictures, Apr., 332
Staiger, Janet, Standardization and Independence: The Founding Objectives of the SMPTE, June, 532
Stanton, Julia A., and **Stanton, Michael J.,** Bibliography: Video Production Technologies, Aug., 762
——, and **Stanton, Michael J.,** Video Recording: A History, Mar., 253
Stanton, Michael J., and **Stanton, Julia A.,** Bibliography: Video Production Technologies, Aug., 762
——, and **Stanton, Julia A.,** Video Recording: A History, Mar., 253
Stevens, E. G., et al., High-Density Solid-State Image Sensor, Dec., 1186
Streeter, Richard G., 1986 Progress Report — Engineering Report, Apr., 327
Stumpf, Richard J., A Film Studio Looks at HDTV, Mar., 247

T

Tamura, E., and **Thorpe, L.,** A New 510-Element CCD Camcorder for ENG, June, 518
Thomas, Graham A., HDTV Bandwidth Reduction by Adaptive Subsampling and Motion-Compensation DATV Techniques, May, 460
Thomas, Robert, New Technology and the Broadcaster, Oct., 971
Thorpe, L., and **Tamura, E.,** A New 510-Element CCD Camcorder for ENG, June, 518
Tienkamp, Engbert, and **Van Roessel, Frederik J.,** The Computer as a Camera-Operation and Image-Quality Manager, Nov., 1079
Tominaga, T., et al., A New Small-Format VTR Using an 8mm Cassette, May, 466
Tredwell, T. J., et al., High-Density Solid-State Image Sensor, Dec., 1186

U

Umemoto, Masuo; Eto, Yoshizumi; and **Kawamura, Toshiaki,** Considerations for Improvement of an HDTV Digital VTR, Feb., 177

V

Van Roessel, Frederik J., and **Tienkamp, Engbert,** The Computer as a Camera-Operation and Image-Quality Manager, Nov., 1079

W

Wary, J. C., et al., Modernization and Computerization of the Silver-Recovery Operation in a High-Volume Laboratory, Aug., 745
Watney, J., et al., The Composite Digital Format and Its Applications, Oct., 934
West, M., et al., The Zoom Aerial 65mm Optical Printer (ZAP) System, July, 674
Wilcox, B., et al., The Zoom Aerial 65mm Optical Printer (ZAP) System, July, 674
Wilkinson, James H., A Review of the Signal Format Specification for the 4:2:2 Component Digital VTR, Dec., 1166
Wolvington, James W., Digital Audio Post-Production: Sound Editing Transformed, Jan., 34

Y

Yagi, N.; Murakami, K.; and **Enami, K.,** A Proposed Universal Signal-Processing System, June, 527
——; **Enami, K.;** and **Murakami, K,** Real-Time Video Signal Processor, Dec., 1158
Yokoyama, K., et al., High-Quality Magneto-Optic Disk Video Recording, Nov., 1062
Young, Irwin W., 1986 Progress Report — Educational, Apr., 389

Z

Zubrzycki, John; Oliphant, Andrew; and **Marsden, Richard,** An Optical Routing System for Tomorrow's Television Studio Centers, July, 660

Index to SMPTE-Sponsored American National Standards and Society Recommended Practices and Engineering Guidelines

Individual Copies, Complete Sets, and Standard Binders: Individual copies of approved standards, practices, and guidelines and loose-leaf binders containing a complete set of all SMPTE-sponsored documents may be purchased from Society Headquarters.

Standards Subscription Service: The service supplies all approved standards, practices, and guidelines which are sponsored by the SMPTE and which are validated during the calendar year. Proposals are published in the *Journal* and are not included in the subscription service. Write to SMPTE for detailed information regarding this service.

Subject	No.	Journal
Audio		
Photographic Record		
Super 8	**PH22.182-1978 R1984**	Nov. 1978
Control and Data	**RP 118-1983**	Mar. 1984
Spectral Response	**RP 109-1982 R1987**	May 1983
16mm	**PH22.41-1983**	Oct. 1983
2-Track	**SMPTE 204-1987**	Sept. 1987
Control and Data	**RP 114-1983**	Jan. 1984
Perforated Super 8	**RP 126-1984**	Apr. 1985
Signal-to-Noise Ratio	**PH22.211M-1984**	July 1984
35mm	**PH22.40-1984**	Aug. 1984
2-Track	**SMPTE 203-1987**	Sept. 1987
Control and Data, Release Prints	**RP 115-1983**	Jan. 1984
Camera Negatives	**RP 116-1983**	Feb. 1984
Perforated Super 8	**RP 126-1984**	Apr. 1985
Reproduction Characteristic	**SMPTE 214M-1984**	Apr. 1985
Signal-to-Noise Ratio	**PH22.211M-1984**	July 1984
Magnetic Record		
Regular 8	**PH22.135-1982**	Oct. 1982
Super 8	**PH22.164-1982**	Jan. 1983
Control and Data	**RP 117-1983**	Mar. 1984
Recorded Characteristic	**PH22.209M-1984**	Dec. 1984
Sync Pulse	**EG 7-1984**	Oct. 1984
16mm 100 mil	**PH22.112-1983**	Jan. 1984
200 mil	**PH22.97-1982**	Oct. 1982
Center Position	**SMPTE 218M-1985**	Dec. 1985
Head Gaps, 2 records	**PH22.210M-1984**	July 1984
Recorded Characteristic	**SMPTE 213M-1984**	Jan. 1985
35mm 3-Track	**PH22.86-1981**	Mar. 1982
4-Track	**SMPTE 108-1986**	May 1986
Release	**PH22.137-1981**	Nov. 1981
6-Track	**SMPTE 186-1986**	May 1986
Data Tracks, Low Dispersion	**RP 137-1986**	Aug. 1986
Recorded Characteristic	**PH22.208M-1984**	Dec. 1984
4-Track Striped Release Prints	**SMPTE 216-1985**	June 1985
70mm	**SMPTE 185-1987**	June 1987
Recorded Characteristic	**SMPTE 217-1985**	June 1985
Acoustic Noise Levels, Dubbing Stages	**EG 14-1987**	Aug. 1987
Camera Noise Measurement, Field Method	**EG 16**	Aug. 1987[1]
Channel Assignments		
Multichannel to 2 Channel	**RP 147-1987**	Dec. 1987
2 Channel to 2 Channel	**RP 150**	Dec. 1987[1]
Cross Modulation	**RP 104-1987**	Sept. 1987
Dialog Recording Level	**EG 15-1987**	Aug. 1987
Electro-Acoustic Response, Control Rooms and Theaters	**PH22.202M-1984**	Dec. 1984
Masters for Transfer to 16-mm	**EG 17**	Aug. 1987[1]
Intermodulation Distortion	**RP 120-1983**	July 1984
Noise Levels, Theaters and Review Rooms	**RP 141-1986**	Jan. 1987
Photoelectric Output Factor	**SMPTE 183M-1985**	Dec. 1985
Polarity for Analog	**RP 134-1986**	June 1986
Post-Production Recording Level	**EG 9-1985**	Dec. 1985
Record Test Position	**RP 140-1986**	Jan. 1987
Test Films		
Audio, Use of	**EG 13-1986**	Mar. 1987
Basic Parameters	**EG 12-1986**	Mar. 1987
Use and Care	**RP 45-1972 R1987**	Aug. 1972
Time and Control Code		
24, 25 and 30 Frames/sec	**RP 136-1986**	Aug. 1986
Binary User Groups	**RP 135-1986**	Aug. 1986
Stripe		
Regular 8	**PH22.88-1982**	July 1983
Super 8	**SMPTE 161-1986**	Nov. 1986
Regular 8 on 16mm	**PH22.136-1982**	July 1983
Super 8 on 16mm (1-3)	**PH22.176-1982**	July 1983
(1-4)	**SMPTE 162-1986**	Nov. 1986

Society of Motion Picture and Television Engineers

595 West Hartsdale Ave.
White Plains, NY 10607
(914) 761-1100

Subject	No.	Journal
Super 8 on 35mm (5R)	SMPTE 163-1986	Dec. 1986
16mm 30 mil	PH22.101-1982	July 1983
50 mil	PH22.127-1983	Mar. 1984
100 mil	SMPTE 87M-1985	Nov. 1985
35mm 4-Track Release	PH22.177-1982	Aug. 1983
70mm 6-Track Release	SMPTE 221-1987	May 1987
Film Dimensions		
8mm, Perforated Super 8, 1R	PH22.149-1981	Dec. 1981
16mm, Perforated Regular 8, 2R-1500	PH22.17-1982	Aug. 1982
16mm, Perforated Super 8, (1–3)	SMPTE 151-1987	Aug. 1987
(1–4)	SMPTE 168-1986	Feb. 1987
16mm, 1R	SMPTE 109-1986	July 1986
16mm, 2R	SMPTE 110-1986	July 1986
35mm, Perforated Super 8, 2R-1664 (1–0)	SMPTE 169-1986	Feb. 1987
5R	PH22.165-1981	Oct. 1981 Sept. 1986[2]
35mm, Perforated 16mm, 3R (1–3–0)	SMPTE 171-1986	Dec. 1986
35mm, Perforated 32mm, 2R	SMPTE 73-1987	Aug. 1987
35mm, BH	SMPTE 93-1986	Aug. 1986
35mm, CS-1870	SMPTE 102-1986	Jan. 1987
35mm, DH-1870	PH22.1-1981	Dec. 1981
35mm, KS	SMPTE 139-1986	Jan. 1987
65mm, KS	PH22.145-1981	Dec. 1981
70mm, Perforated 65mm, KS-1870	PH22.119-1981	Dec. 1981 Sept. 1986[2]
Film Usage, Camera		
Regular 8	SMPTE 231M-1987	Oct. 1987
Super 8	PH22.156M-1982	Jan. 1983
16mm	PH22.9M-1982	Jan. 1983
35mm	SMPTE 219M-1985	May 1985
Film Usage, Projector		
Regular 8	SMPTE 232M-1987	Nov. 1987
Super 8	PH22.155-1982	Aug. 1983
16mm	SMPTE 10M-1985	Apr. 1986
35mm	PH22.194-1984	Oct. 1984
Image Areas, Camera		
Regular 8	PH22.19-1983	Oct. 1983
Super 8	PH22.157-1971 R1984	June 1971
16mm	PH22.7-1983	Oct. 1983
Super 16	PH22.201M-1981	Nov. 1981
35mm	PH22.59-1974 R1981	June 1974
65mm	SMPTE 215-1984	Apr. 1985
Image Areas, Printer		
Super 8 on 16mm (1–3)	SMPTE 181-1985	Feb. 1986
(1–4)	SMPTE 153-1985	Nov. 1985
Super 8 on 35mm	SMPTE 179-1985	Feb. 1986
16mm Contact (positive from negative and reversal)	PH22.48-1983	Mar. 1984
16mm to 35mm Enlargement Ratio	RP 66-1982	Dec. 1982
Super 16 to 35 Enlargement Ratio	PH22.201M-1981	Nov. 1981
35mm to 16mm Prints and Dupe Negatives	RP 65-1982	Dec. 1982
35mm Release Picture-Sound Continuous Contact	PH22.111-1982	Aug. 1982
Image Areas, Projectable		
8mm Release Prints	RP 56-1985	Nov. 1985
Regular 8	SMPTE 234-1987	Nov. 1987
Super 8	PH22.154-1982	Jan. 1983
16mm	SMPTE 233-1987	Oct. 1987
16 and 35mm TV Review Room	SMPTE 148-1984	Mar. 1985
35mm	PH22.195-1984	Oct. 1984
70mm	PH22.152-1983	Jan. 1984
Television		
Alignment Color Bar Signal	ECR 1-1978 R1983	Oct. 1978
Density, Monochrome, Films and Slides	RP 7-1982	July 1983
Color	RP 46-1985	Jan. 1986
Digital Control Interface		
Electrical and Mechanical Characteristics	SMPTE 207M-1984	June 1984
Bit-Parallel	RP 125-1984	Apr. 1985
Control Message Architecture	RP 138-1986	Sept. 1986
Supervisory Protocol	RP 113-1983	June 1984
Tributary Interconnection	RP 139-1986	Sept. 1986
HDTV 1125/60 Signal	SMPTE 240M	Nov. 1987[1]
Illuminator for Test Pattern Transparencies	RP 72-1977 R1983	June 1977
Image Area		
16mm Film	PH22.96-1982	Dec. 1982
35mm Film	PH22.95-1984	Aug. 1984
Review Rooms	SMPTE 148-1984	Mar. 1985
Slides and Opaques	SMPTE 94-1985	Oct. 1985
Monitors		
Color Temperature	RP 37-1969 R1982	Sept. 1969
Colorimetry	RP 145-1987	Nov. 1987
Electro-Acoustic Response	SMPTE 222M-1987	May 1987
Setting of White for	RP 71-1977	June 1977
Review Room Screens	RP 41-1983	May 1984
2 × 2 Slide Mount	RP 9-1986	Nov. 1986
Test Patterns		
Alignment	RP 27.1-1983	Aug. 1984
Cameras, Telecine	RP 27.7-1972 R1977	Sept. 1972
Linearity	RP 38.1-1983	Oct. 1983
Mid-Frequency Response	RP 27.5-1983	Oct. 1983
Picture Steadiness	RP 27.4-1985	Jan. 1986
Registration	RP 27.2-1983	Aug. 1984
Safe Areas	RP 27.3-1983	Aug. 1984
Test Materials		
Medical Diagnostic Imaging	RP 133-1986	June 1986
Photographic		
Regular 8 Registration	RP 19-1982	June 1983
Super 8 Registration	RP 32-1982	June 1983
16mm Buzz-Track	RP 67-1983	Nov. 1983
Flutter	RP 70-1984	Dec. 1984
Projector Alignment	RP 82-1985	Oct. 1985
Registration	RP 20-1982	June 1983
Scanning Beam	RP 81-1984	May 1985
Sound Focusing	RP 63-1983	June 1984
Sound Projector	RP 18-1986	Dec. 1986

Subject	No.	Journal
35mm Buzz-Track	RP 68-1984	May 1985
Flutter	RP 97-1987	Oct. 1987
Projector Alignment	RP 40-1971	Aug. 1971
	R1977	May 1982[2]
Anamorphic Attachments	RP 110-1983	Sept. 1983
Scanning Beam	RP 69-1983	June 1984
Sound Focusing	RP 64-1987	Oct. 1987
Theater Test	RP 35-1985	Oct. 1985
70mm Projector Alignment	RP 91-1981	Sept. 1981
		July 1987[1]
Magnetic		
Super 8 Azimuth Alignment	RP 61-1983	Aug. 1983
Flutter	RP 62-1984	Dec. 1984
Multifrequency	RP 92-1986	July 1986
16mm Azimuth Alignment	RP 78-1983	Sept. 1984
Flutter	RP 76-1983	Sept. 1984
Multifrequency	RP 90-1979	Jan. 1980
35mm Azimuth Alignment	RP 77-1987	June 1987
4-Track	RP 80-1987	June 1987
Flutter	RP 75-1984	Jan. 1985
4-Track	RP 79-1984	Jan. 1985
Multifrequency	RP 127-1985	Feb. 1986
4-Track	RP 143-1986	May 1987
70mm Multifrequency	RP 128-1985	Feb. 1986
Video Magnetic Tape Recording		
Channel Allocation, Stereo	RP 142-1986	Apr. 1987
Edit Decision Lists		
Storage	RP 132-1985	May 1986
Transfer	RP 146-1987	Nov. 1987
Polarity, Stereo Signals	RP 148-1987	Dec. 1987
Tape Care and Handling	RP 103-1982	Oct. 1982
	R1987	
Time and Control Code	SMPTE 12M-1986	June 1986
Recording Requirements	RP 101-1986	Feb. 1987
Helical Scan		
Code, Time and Control, Recording Requirements	RP 93-1987	Sept. 1987
Raw Stock, Reference Tape	V98.26M-1982	Mar. 1983
Receiver/Monitor Test Tapes		
Types E, G and H	RP 96-1983	Nov. 1983
Reels, 1-in	SMPTE 24M-1985	July 1985
Tape, 1-in	V98.25M-1982	Mar. 1983
Type B 1-in		
Basic Parameters	SMPTE 15M-1987	Aug. 1987
Carrier Frequencies and Pre-emphasis	RP 84-1987	July 1987
Dropout	RP 121-1983	July 1984
Frequency Response and Operating Level	SMPTE 17M-1987	Aug. 1987
Record Dimensions	SMPTE 16M-1987	Aug. 1987
Reference Tapes		
Video and Audio	RP 107-1982	June 1983
Record Dimensions	V98.30M-1982	May 1983
Recorder Parameters	V98.29M-1982	May 1983
Tracking-Control Record	RP 83-1987	July 1987
Type C-1 in		
Basic Parameters	V98.18M-1983	Nov. 1983
Dropout	RP 121-1983	July 1984
Frequency Response and Reference Level	SMPTE 20M-1985	July 1985
Record Dimensions	V98.19M-1983	May 1984
Recorder Parameters	RP 86-1985	Aug. 1985
Reference Tapes		
Interchange	RP 100-1983	Dec. 1983
Video and Audio	RP 99-1983	Dec. 1983
Record Dimensions	V98.28M-1983	Dec. 1983
Recorder Parameters	V98.27M-1983	Dec. 1983
Tracking-Control Record	RP 85-1985	Aug. 1985
Type D-1 19mm		
Cue and Time and Control Code Records	SMPTE 228M	Mar. 1986[1]
Helical Data and Control Records	SMPTE 227M	Mar. 1986[1]
Magnetic Tape	SMPTE 225M	Mar. 1986[1]
Nomenclature	EG 11	Mar. 1986[1]
Tape Cassette	SMPTE 226M	Mar. 1986[1]
Tape Record	SMPTE 224M	Mar. 1986[1]
Transport Geometry Parameters	EG 10	Mar. 1986[1]
Type E ¾-in		
Carrier Frequencies, Pre-emphasis, Audio and Control Signals	RP 87-1986	Apr. 1987
Cassette Dimensions	SMPTE 22M-1986	Apr. 1987
Record Dimensions	SMPTE 21M-1986	Apr. 1987
Small Cassette	V98.31M-1983	Nov. 1983
Type F ½-in		
Carrier Frequencies and Pre-emphasis	RP 88-1986	Oct. 1986
Records and Parameters	SMPTE 23M-1986	Aug. 1986
Type G ½-in		
Carrier Frequencies, Pre-emphasis, Audio and Control Signals	RP 119-1984	Nov. 1984
Cassette and Tape	V98.35M-1984	Nov. 1984
Records	V98.34M-1984	Nov. 1984
Type H ½-in		
Carrier Frequencies, Pre-emphasis, Audio and Control Signals	RP 112-1983	Feb. 1984
Records	V98.32M-1983	Feb. 1984
Tape and Cassette	V98.33M-1983	Feb. 1984
Type L ½-in		
Basic System, Transport Geometry Parameters	RP 144	July 1986[1]
Records	SMPTE 229M	July 1986[1]
Video, Audio, Time and Control Code and Tracking Control	SMPTE 230M	July 1986[1]
Quadruplex		
Audio 2 Level/Response	RP 102-1986	Feb. 1987
Dropout Detection	RP 47-1985	Sept. 1985
Dual-Program Audio	RP 89-1984	Feb. 1985
Headwheel and Guides	RP 36-1984	July 1985
Labels	RP 26-1981	Apr. 1982
		May 1987[3]
Leader, Monochrome	V98.2-1982	Dec. 1982
Color	V98.9-1983	Sept. 1983
Modulation Practices	RP 6-1985	Sept. 1985
Patch Splices	RP 5-1982	Jan. 1983
Records, Characteristics of Audio	SMPTE 3-1986	Oct. 1986
Record Dimensions, Video, Audio and Tracking Control	V98.6-1981	Oct. 1981
		June 1987[2]
Record, Tracking Control	RP 16-1982	July 1983
Reels, 2-in	V98.5-1983	May 1984
½-in.	C98.14-1975	Mar. 1976
	R1981	
Speed	V98.4-1983	Sept. 1983
Spools, Cartridge	V98.13-1981	Oct. 1981
Labels	RP 60-1986	July 1986
Tape Dimensions	C98.1-1978	Aug. 1978
	R1984	

Subject	No.	Journal
Tape Vacuum Guide	RP 11-1984	Feb. 1985
Tape Usage, Cartridge/ Cassette Spools	EG 6-1982 R1987	Mar. 1983
Test Tapes		
Multifrequency		
15 in/s	V98.8-1982	Feb. 1983
7.5 in/s	V98.11-1982	Feb. 1983
Video Frequency, 15 in/s, HB	RP 43-1983	May 1984
Vertical Interval Signal	RP 57-1974 R1985	Jan. 1975
MISCELLANEOUS		
Camera Equipment		
Space Environment	EG 8-1984	Jan. 1985
Mounting Connections	SMPTE 220-1985	Jan. 1986
Cartridge, Super 8 Camera		
Notches	PH22.166-1981	Nov. 1981
Silent		
50 Ft.		
Model I		
Aperture, Profile, Pressure Pad Film Position	SMPTE 159.2-1986	Sept. 1986
Camera Run Length, Perforation Cut-Out, End of Run Notch	PH22.200M-1982	Aug. 1983
Cartridge, Cartridge-Camera Interface, Take-Up Core Drive	SMPTE 159.1-1986	Sept. 1986
Model II		
Cartridge, Cartridge-Camera Fit, Core	PH22.190M-1982	June 1983
Film Length, Camera Run	PH22.188M-1982	June 1983
Position	PH22.189M-1982	June 1983
Speed, Color Balance, Identification	PH22.191M-1982	June 1983
Sound		
50 Ft.		
Model I		
Aperture, Pressure Pad, Film Position	SMPTE 198-1986	Mar. 1987
Camera-Run Length, Perforation Cut-Out, End-of-Run Notch	PH22.200M-1982	Aug. 1983
Cartridge, Cartridge-Camera Interface, Core Drive	SMPTE 197-1986	Mar. 1987
Pressure Pad Flatness, Aperture Profile	SMPTE 199-1986	Mar. 1987
200 Ft.		
Model I		
Aperture, Profile, Film Position, Pressure Pad, Flatness	PH22.206-1982	Apr. 1983
Camera-Run Length, Perforation Cut-Out, End-of-Run Notch	PH22.200M-1982	Aug. 1983
Cartridge, Cartridge-Camera Interface, Core Drive	PH22.205-1982	Apr. 1983
Conference		
Audio Reinforcement	EG 4-1982 R1987	Mar. 1983
Projector	EG 3-1984	Oct. 1984
Cores for Raw Stock Film	SMPTE 37M-1987	Dec. 1987
Density Measurements		
Calibration of Densitometers	RP 15-1982	Dec. 1982
Spectral Diffuse	SMPTE 117M-1985	Oct. 1985
Edge Numbering		
16mm Film	PH22.83-1972 1984	Dec. 1972
16mm Release Prints	RP 54-1974 R1984	July 1974
Emulsion Orientation		
Print Winding	RP 39-1970 R1982	Apr. 1970
Raw Stock Winding	PH22.75-1975 R1982	Mar. 1976
Film Length, 8mm Camera Spool		
(25-ft Capacity)	PH22.143-1975 R1981	Feb. 1976
Image Quality		
70, 35, 16mm	EG 5-1982	Mar. 1983
Jump and Weave		
70, 35, 16mm	RP 105-1981	June 1982
Leaders		
Preprint, 8mm	RP 49-1986	Oct. 1986
Universal	PH22.55-1983	Sept. 1984
Lenses		
Focus Scales, 16mm and 8mm Cameras	PH22.74-1965 R1981	May 1965
Projection Lens Mounts, 35 and 70mm	PH22.28-1982	Nov. 1982
Lens Mounts		
16mm and 8mm Cameras	SMPTE 76-1985	May 1985
Lubrication		
16 and 8mm Prints	RP 48-1984	Mar. 1985
Nomenclature		
Cartridge/Cassettes	RP 58-1974 R1985	Jan. 1975
Film	SMPTE 56-1984	Mar. 1985
Notching		
Scene Change, 35mm	RP 53-1983	Apr. 1984
Raw Stock		
Identification	SMPTE 184M-1987	June 1987
Container Edge	EG 2-1985	Dec. 1985
Reels		
Regular 8	PH22.23-1975 R1981	Apr. 1976
Super 8	PH22.160M-1983	Apr. 1984
75mm diameter	SMPTE 212M-1984	Jan. 1985

Subject	No.	Journal
16mm	**PH22.11-1981**	Feb. 1982
35mm Shipping	**SMPTE 192-1985**	Jan. 1986
35 and 70mm	**PH22.4-1983**	Apr. 1984
Reversal Color Film Speed	**SMPTE 146M-1986**	Aug. 1986
Safety Film	**SMPTE 223M-1985**	Apr. 1986
Screens		
Gain		
Determination	**RP 94-1980**	June 1981
Installation	**RP 95-1980**	June 1981
Luminance		
Drive-in Theaters	**RP 12-1983**	Apr. 1984
Indoor Theaters	**SMPTE 196M-1986**	Oct. 1986
Measurement	**RP 98-1981**	Sept. 1981
Review Rooms, 8mm	**RP 51-1986**	Nov. 1986
Television	**RP 41-1983**	May 1984
Slides and Film Strips	**RP 59-1986**	Dec. 1986
Sensitometric Strips	**RP 14-1982**	Dec. 1982
Spindles		
Super 8 Projector	**RP 50-1985**	Nov. 1985
16mm Camera	**RP 24-1984**	June 1985
16mm Projector	**RP 34-1984**	July 1985
35mm Rewind	**RP 21-1982**	Jan. 1983
Splices		
16 and Regular 8		
Projection Tape	**RP 130-1985**	Apr. 1986
Transverse Cemented	**PH22.24-1982**	Aug. 1982
		Dec. 1987[3]
	RP 149	Dec. 1987[1]
Super 8		
Cemented	**RP 122-1983**	July 1984
Tape	**RP 123-1983**	July 1984
35, 16 and Super 8		
Magnetic Tape	**RP 129-1985**	Apr. 1986
70, 65, and 35mm	**RP 111-1983**	Sept. 1983
Spools		
8mm, 25-ft capacity	**SMPTE 107-1987**	Dec. 1987
Double 8, 100-ft capacity	**PH22.173-1975**	Feb. 1976
	R1981	
16mm, Daylight-Loading, 50- to 400-ft capacity	**PH22.174-1981**	Mar. 1982
Sprockets		
Regular 8	**RP 73-1977**	Jan. 1978
	R1983	
Super 8	**RP 55-1974**	Jan. 1975
	R1984	
16mm	**RP 74-1977**	Jan. 1978
	R1983	
35mm	**PH22.35-1982**	Nov. 1982
Storage		
Edit Decision Lists	**RP 132-1985**	May 1986
Motion-Picture Films	**RP 131-1985**	May 1986
Studio Lighting		
Pivot and Holders	**RP 124-1984**	Nov. 1984
Synchronization		
Sound-Picture	**RP 25-1984**	June 1985
Tension		
35mm Systems	**RP 106-1982**	Oct. 1982
	R1987	
Unsteadiness		
High-Speed Camera	**RP 17-1964**	May 1964
	R1987	

R — Reaffirmed.
[1] Proposal.
[2] Proposed editorial revision.
[3] Withdrawal notice.

American National Standards, SMPTE Recommended Practices, Engineering Guidelines, and International Standards — 1987 • Volume 96

Number	*Title*	*Issue*	*Page*
American National Standards			
SMPTE 6	Proposed Editorial Revision, Video Recording — Video, Audio and Tracking-Control Records — 2-in Quadruplex Tape	June	560
ANSI/SMPTE 15M-1987	Approved, Video Recording — 1-in Type B Helical Scan — Basic System Parameters	July	723
ANSI/SMPTE 16M-1987	Approved, Video Recording — 1-in Type B Helical Scan — Records	July	724
ANSI/SMPTE 17M-1987	Approved, Video Recording — 1-in Type B Helical Scan — Frequency Response and Operating Level	July	725
ANSI/SMPTE 21M-1986	Approved, Video Recording — ¾-in Type E Helical Scan — Records	Apr.	442
ANSI/SMPTE 22M-1986	Approved, Video Recording — ¾-in Type E Helical Scan — Cassette	Apr.	444
ANSI PH22.24-1982	Proposed Withdrawal, Dimensions of Transverse Cemented Splices on 16-mm and 8-mm Type R Motion-Picture Film	Dec.	1236
ANSI/SMPTE 37M-1987	Approved, Motion-Picture Equipment — Raw Stock Cores	Dec.	1237
ANSI/SMPTE 73-1987	Approved, Motion-Picture Film (32-mm) — 35-mm Film Perforated 32-mm, 2R	Aug.	811
ANSI/SMPTE 102-1986	Approved, Motion-Picture Film (35-mm) — Perforated CS-1870	Jan.	68
ANSI/SMPTE 107-1987	Approved, Motion-Picture Equipment (8-mm Type R) — Double 8-mm Camera Spools — 25-Ft Capacity	Dec.	1238
ANSI/SMPTE 139-1986	Approved, Motion-Picture Film (35-mm) — Perforated KS	Jan.	69
ANSI/SMPTE 151-1987	Approved, Motion-Picture Film (8-mm Type S) — 16-mm Film Perforated 8-mm Type S, (1-3)	Aug.	812
ANSI/SMPTE 168-1986	Approved, Motion-Picture Film (16-mm) — Perforated 8-mm Type S, (1-4)	Feb.	221
ANSI/SMPTE 169-1986	Approved, Motion-Picture Film (35-mm) — Perforated 8-mm Type S, 2R-1664 (1-0)	Feb.	223
ANSI/SMPTE 184M-1987	Approved, Motion-Picture Film — Raw Stock Identification and Labeling	June	561
ANSI/SMPTE 185-1987	Approved, Motion-Picture Film (70-mm) — Position, Dimensions and Reproducing Speed — Six Magnetic Records on Release Prints	June	563
ANSI/SMPTE 197-1986	Approved, Motion-Picture Film (8-mm Type S) — 50-Ft Model 1 Sound Camera Cartridge — Cartridge, Cartridge-Camera Interface and Take-Up Core	Mar.	312
ANSI/SMPTE 198-1986	Approved, Motion-Picture Film (8-mm Type S) — 50-Ft Model 1 Sound Camera Cartridge — Aperture, Pressure Pad and Film Position	Mar.	316
ANSI/SMPTE 199-1986	Approved, Motion-Picture Film (8-mm Type S) — 50-Ft Model 1 Sound Camera Cartridge — Pressure Pad Flatness and Camera Aperture Profile	Mar.	314
ANSI/SMPTE 203-1987	Approved, Motion-Picture Film (35-mm) — Two-Track Photographic Audio Records — Prints	Sept.	925
ANSI/SMPTE 204-1987	Approved, Motion-Picture Film (16-mm) — Two-Track Photographic Audio Records — Prints	Sept.	926
ANSI/SMPTE 221-1987	Approved, Motion-Picture Film (70-mm) — Magnetic Striping — Six-Track Audio Release Prints	May	509
ANSI/SMPTE 222M-1987	Approved, Television — Monitor System — Electro-Acoustic Response — Control and Review Rooms	May	510
ANSI/SMPTE 231M-1987	Approved, Motion-Picture Film (8-mm Type R) — Double-Width Film Perforated Two Edges — Camera Usage	Oct.	1055
ANSI/SMPTE 232M-1987	Approved, Motion-Picture Film (8-mm Type R) — Perforated One Edge — Projector Usage	Nov.	1136
ANSI/SMPTE 233-1987	Approved, Motion-Picture Film (16-mm) — Projectable Image Area	Oct.	1054
ANSI/SMPTE 234-1987	Approved, Motion-Picture Film (8-mm Type R) — Projectable Image Area	Nov.	1137
SMPTE 240M	Proposed, Television — Signal Parameters — 1125/60 High-Definition Production System	Nov.	1150
SMPTE Recommended Practices			
RP 17-1964	Reaffirmed 1987, Photographic Recording Technique for Measuring High-Speed Camera Image Unsteadiness	Nov.	1135
RP 26-1981	Proposed Withdrawal, Label Specifications for Quadruplex and Helical-Scan Video Magnetic Tape Recordings	May	508
RP 39-1970	Reaffirmed 1987, Specifications for Maintaining an Emulsion-In Orientation on Theatrical Release Prints	Nov.	1135
RP 64	Proposed Editorial Revision, Specifications for Audio-Focusing Test Film for 35-mm Audio Reproducers, Photographic Type	Jan.	67
RP 64-1987	Approved, Specifications for Audio-Focusing Test Film for 35-mm Audio Reproducers, Photographic Type	Oct.	1055

Number	Title	Issue	Page
RP 77-1987	Approved, Specifications for Azimuth Test Film for 35-mm Studio Audio Reproducers, Magnetic Type	June	565
RP 80-1987	Approved, Specifications for Azimuth Test Film for 35-mm Four-Track Striped Release Print Audio Reproducers, Magnetic Type	June	566
RP 83-1987	Approved, Specifications of Tracking Control Record for 1-in Type B Helical-Scan Video Tape Recording	July	726
RP 84-1987	Approved, Video Reference Carrier Frequencies and Pre-Emphasis Characteristics for 1-in Type B Helical-Scan Video Tape Recording	July	727
RP 87-1986	Approved, Reference Carrier Frequencies, Pre-emphasis Characteristic and Audio and Control Signals for ¾-in Type E Helical-Scan Video Tape Cassette Recording	Apr.	447
RP 91	Proposed, Specifications for 70-mm Projector Alignment and Screen Image Quality Test Film	July	728
RP 93-1987	Approved, Requirements for Recording American National Standard Time and Control Code on 1-in Types B and C Helical-Scan Video Tape Recorders	Sept.	927
RP 97	Proposed Editorial Revision, Specifications for Flutter Test Film for 35-mm Audio Reproducers, Photographic Type	Jan.	67
RP 97-1987	Approved, Specifications for Flutter Test Film for 35-mm Audio Reproducers, Photographic Type	Oct.	1056
RP 101-1986	Approved, Requirements for Recording American National Standard Time and Control Code on Quadruplex Video Tape Recorders	Feb.	225
RP 102-1986	Approved, Frequency Response and Operating Level of Recorders and Reproducers for Audio 2 Record for 2-in Quadruplex Video Magnetic Tape Operating at 15 and 7.5 in/s	Feb.	223
RP 104-1987	Approved, Cross-Modulation Tests for Variable-Area Photographic Audio Tracks	Sept.	928
RP 140-1986	Approved, Position of Photographic Audio Record for Routine Test Signals	Jan.	71
RP 141-1986	Approved, Background Acoustic Noise Levels in Theaters and Review Rooms	Jan.	70
RP 142-1986	Approved, Stereo Audio Track Allocations and Identification of Noise Reduction for Video Tape Recordings	Apr.	448
RP 143-1986	Approved, Specifications for Type U Audio Level and Multifrequency Test Film for 35-mm Striped Four-Track Release Print Audio Reproducers, Magnetic Type	May	512
RP 145-1987	Approved, Color Monitor Colorimetry	Nov.	1138
RP 146-1987	Approved, Transfer of Edit Decision Lists	Nov.	1138
RP 147	Proposed, Audio Channel Assignments of Multi-Channel Sub-Masters Used in Preparation for Two-Track Masters for Transfer to Video	Apr.	449
RP 147-1987	Approved, Audio Channel Assignments of Multi-Channel Sub-Masters Used in Preparation for Two-Track Masters for Transfer to Video	Dec.	1240
RP 148	Proposed, Relative Polarity of Stereo Audio Signals	Apr.	449
RP 148-1987	Approved, Relative Polarity of Stereo Audio Signals	Dec.	1240
RP 149	Proposed, Dimensions of Transverse Cemented Splices on 16-mm and 8-mm Type R Motion-Picture Film	Dec.	1241
RP 150	Proposed, Channel Assignments and Test Leader for Magnetic Film Masters Intended for Transfer to Video Media Having Stereo Audio	Dec.	1242

SMPTE Engineering Guidelines

EG 12-1986	Approved, Control of Basic Parameters in the Manufacture of SMPTE Photographic and Magnetic Audio Test Films	Mar.	318
EG 13-1986	Approved, Use of Audio Magnetic Test Films	Mar.	319
EG 14-1987	Approved, Acoustical Background Noise Levels	Aug.	813
EG 15-1987	Approved, Recording Level for Dialog in Motion-Picture Production	Aug.	814
EG 16	Proposed, Measurement Methods for Motion-Picture Camera Acoustical Noise — Field Method	Aug.	815
EG 17	Proposed, B-Chain Electro-Acoustical Response for Preparing Magnetic Masters for Transfer to 16-mm or 35/32-mm Monaural Photographic Film	Aug.	816

International Standards

ISO 1189-1986	Approved, Cinematography — Recorded Characteristic for Magnetic Sound Records on 35 mm Motion-Picture Film Excluding Striped Release Prints — Specifications	Jan.	72
ISO 2404-1986	Approved, Cinematography — Six-Track Magnetic Sound Records on 70 mm Striped Release Prints — Locations and Dimensions	Nov.	1153
ISO 2939-1986	Approved, Cinematography — Picture Image Area and Photographic Sound Record on 35 mm Motion-Picture Release Prints — Position and Dimensions	Mar.	320
ISO 2969-1987	Approved, Cinematography — B-Chain Electro-Acoustic Response of Motion-Picture Control Rooms and Indoor Theatres — Specifications and Measurements	Dec.	1243
ISO 8567-1986	Approved, Cinematography — Maximum Permissible Area for Subtitle on 35 mm and 16 mm Motion-Picture Release Prints — Dimensions and Locations	Oct.	1056